

CLAIMS

1. A method of performing position determination in a wireless communication network with repeaters, comprising:

identifying a signal received by a wireless terminal as being from a repeater;

obtaining a position of the repeater; and

providing the position of the repeater as a position estimate for the terminal if a more accurate position estimate for the terminal cannot be obtained.

2. The method of claim 1, further comprising:

providing a position uncertainty for the repeater as an uncertainty in the position estimate for the terminal if the more accurate position estimate for the terminal cannot be obtained.

3. The method of claim 1, wherein the more accurate position estimate for the terminal cannot be obtained due to lack of information for additional delays associated with the repeater.

4. The method of claim 1, wherein the more accurate position estimate for the terminal cannot be obtained due to lack of a required number of measurements to perform trilateration for the terminal.

5. The method of claim 1, further comprising:

determining whether the terminal is in an indoor or an outdoor environment; and

providing the position of the repeater as the position estimate for the terminal if the terminal is deemed to be in an indoor environment.

6. The method of claim 5, wherein the terminal is deemed to be in an indoor environment if the repeater is an indoor repeater.

7. The method of claim 5, wherein the determining is based on the number of signals received by the terminal from satellites and base stations.

8. The method of claim 1, further comprising:
comparing received signal strength for the repeater against a threshold; and
providing the position of the repeater as the position estimate for the terminal if
the received signal strength exceeds the threshold.

9. The method of claim 8, wherein the threshold is set based on an expected
received signal strength for the repeater at a particular range from the repeater.

10. The method of claim 1, wherein information for additional delays
associated with the repeater is available, the method further comprising:

processing a time measurement for the repeater to remove the additional delays
associated with the repeater; and

deriving the more accurate position estimate for the terminal based on the time
measurement for the repeater, with the additional delays removed, and time
measurements for at least two additional transmitters received by the terminal.

11. The method of claim 1, wherein the identifying is based on a pseudo-
random number (PN) sequence used for the signal received from the repeater.

12. The method of claim 1, wherein the identifying is based on modulation
characteristics of the signal received from the repeater.

13. The method of claim 1, wherein the identifying is based on a time
measurement obtained at the terminal for the signal received from the repeater.

14. The method of claim 1, wherein the identifying is based on a signal
strength measurement obtained at the terminal for the signal received from the repeater.

15. The method of claim 1, wherein the wireless communication network is a
CDMA network.

16. An apparatus in a wireless communication network with repeaters,
comprising:

means for identifying a signal received by a wireless terminal as being from a repeater;

means for obtaining a position of the repeater; and

means for providing the position of the repeater as a position estimate for the terminal if a more accurate position estimate for the terminal cannot be obtained.

17. The apparatus of claim 16, further comprising:

means for determining whether the terminal is in an indoor or an outdoor environment; and

means for providing the position of the repeater as the position estimate for the terminal if the terminal is deemed to be in an indoor environment.

18. The apparatus of claim 16, further comprising:

means for comparing received signal strength for the repeater against a threshold; and

means for providing the position of the repeater as the position estimate for the terminal if the received signal strength exceeds the threshold.

19. The apparatus of claim 16, further comprising:

means for processing a time measurement for the repeater to remove additional delays associated with the repeater; and

means for deriving the more accurate position estimate for the terminal based on the time measurement for the repeater, with the additional delays removed, and time measurements for at least two additional transmitters received by the terminal.

20. A program embodied on a tangible storage medium, the program comprising executable instructions to:

identify a signal received by a wireless terminal as being from a repeater;

obtain a position of the repeater; and

provide the position of the repeater as a position estimate for the terminal if a more accurate position estimate for the terminal cannot be obtained.

21. A device in a wireless communication network with repeaters, comprising:

a memory unit operative to store a database of information for the repeaters in the network; and

a processor operative to identify a signal received by a wireless terminal as being from a repeater, obtain a position of the repeater from the database, and provide the position of the repeater as a position estimate for the terminal if a more accurate position estimate for the terminal cannot be obtained.

22. The apparatus of claim 21, wherein the database includes a position and a position uncertainty for each of at least one repeater in the network.

23. The apparatus of claim 22, wherein the processor is further operative to obtain a position uncertainty for the repeater and to provide the position uncertainty as an uncertainty in the position estimate for the terminal if the more accurate position estimate for the terminal cannot be obtained.

24. A method of performing position determination in a CDMA communication network with repeaters, comprising:

identifying a transmitter of each of at least one signal received by a wireless terminal as being a repeater or a base station; and

if a signal is received from an identified repeater, providing a position of the identified repeater as a position estimate for the terminal if a more accurate position estimate for the terminal cannot be obtained or if the terminal is deemed to be located in an indoor environment.

25. The method of claim 24, further comprising:

providing the position of the identified repeater as the position estimate for the terminal if received signal strength for the identified repeater exceeds a threshold.